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GENERAL AND REVENUE SECRETARIAT

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Month March 1912

SUBJECT

Copies of the report on the observations made by the Salvation Army with reference to Sanitary & Public Works in India & Ceylon

PREVIOUS REFERENCES	LATER REFERENCES

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GENERAL AND REVENUE SECRETARIAT

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NOTES

File No 242-11

FILE HEADING

Experimental Silk Farm, Bangalore

From

---- ---- The Dept of [illegible] in Mysore

No 6463/452 Dated 9/2/12 Received 15/2/12

Diary No 4552 | Enclos 2 Spare Copies | Serial No 1

BRIEF ABSTRACT OR LETTER

Forwards for information two copies of the Report on the Experiments made by the Salvation Army with French, Italian, Mysore & Eri Silk worms in India & Ceylon.

NOTES AND ORDERS

Dated

Recd 23/3/12

Secy)

3732/22/3/12

Attorney of Report has been attached to E & Revenue P

22/3/12

18th & Return for perusal

20/3/12

18/3/12

NOTES—First Sheet

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Sec-o Edn

Edn 81]

OFFICE OF INSPECTOR GENERAL OF EDUCATION IN MYSORE 242

No. 6463/452 (Enc 2)

Bangalore 9th February 1912

From

The Inspector General of Education in Mysore

To

C S Balasundaram Iyer Esq B A,
Offg Secretary to the Government of H H
The Maharaja of Mysore Genl & Revenue Depts
Bangalore

Sir

I have the honour to forward herewith for the information of Government two copies of the Report on the Experiments made by the Salvation Army with Mysore and Eri Silk worms in India and Ceylon by Commissioner J Booth Tucker

(One copy with me will be returned in due course in file no 22/7/12)

I have the honour to be,
Sir
Your most obedient Servant

C Krishnamachariyar
Asst to the Inspector General of Education

For Inspector General

Ec & Ed 242-11-

EXPERIMENTS

BY

The Salvation Army,

WITH

French, Italian, Mysore and Eri Silk Worms

I

INDIA AND CEYLON

1910 1911

BY

F BOOTH TUCKER

SALVATION ARMY HEAD QUARTERS THE MALL SIMLA.

Price 2 annas

ROYAL A T A PRESS SIMLA

EXPERIMENTS

BY

The Salvation Army

WITH

French, Italian, Mysore & Eri Silk Worms

IN

INDIA AND CEYLON

I S lk Ce tres establisl ed in India and Ceylon

II Not s re a d n⁰ v et es used
- i Tl k e h Silkworm
- The It l n
- Tl My o e
- iv Tl e Γ ı

III P lyvolti s sus Un volt es

IV Tr e ve sus B h M lbe y

V Some e pe me ts n I d nd Ceyl n
- i The T ta S lk F m B g l re
- i Th Pe d nia S lk Fa m C ylon
- i The M ad bad S lk F m U P
- iv Tl e Cl ga M nga S lk Camp Panj b
- v Mulberry Pl nt n⁰

VI Europe n Exp rt Op ı n on Ind an S cult ıe
- i Myso e S lk
  - ( ) The Mysore ersus F ench Worm
  - (*b*) Th syst m of re l ng
  - (*c*) A che p syst m of r ıng
  - (*d*) V r etıes of Mulber ıes
- ı E S lk
- ıı Pla es V s ted a d autho t es co sulted
  - (*a*) Montp ll r S lk School f r Fr nce
  - (*b*) P d a S lk S h ol f r Italy
  - (*c*) C nd t ⁰ h us s of Lyon and Milan
  - (*d*) Imper l In t tute London

VII Reco nmendatıons and Sug estıons

REPORT

On Experiments by the Salvation Army

WITH

FRENCH ITALIAN MYSORE & ERI SILKWORM

1910 1911

CHAPTER I —CENTRES ESTABLISHED

The following sericultural centres have been established for experiments and instruction in silkworm rearing under the management of the Salvation Army —

Bangalore The Tata Silk Farm
Pedda, The Ceylon Government Silk Farm
Moodbidri U P The Fazlpur Silk Farm
Chamarajanagar Punjab Temporary Silk Camp

In addition to these sericultural centres silkworm seed was also distributed at Lalgola Bhatlagurdaha Chowabhagal Gowhati Brodeta and silk is being reeled at the Hawettpur Settlement Aurangabad

Chapter II —NOTES REGARDING VARIETIES USED

1 *The French Silk Worm*

This is a Univoltine variety producing a single crop in the year It has been adopted very successfully in Kashmir Good supplies of reliable disease free seed can be obtained direct from France at reasonable rates

How far this particular silkworm can be successfully introduced in the plains and tropical portions of India appears at present a doubtful question While some small experiments have been successful there have been a great number of failures and semi failures

It is worthy of careful note that in Tonkin where extensive experiments have been made both with foreign and native varieties under expert French guidance it has been decided *to give the preference* to the acclimatised polyvoltine indigenous worm and to concentrate attention on its improvement The French varieties have been found less suited to tropical conditions and far more delicate subject to disease and difficult to rear A similar policy is being pursued in Bengal

This is a vitally important question as the adoption of a wrong policy may injuriously affect the whole future of silk worm rearing in India

11 *The Italian Silk worm*

Like the French worm this is a Univoltine and the same remarks apply to it as to the French

The Mysore Silkworm

This is a Poly litre variety produced solely of peculiar bulbiferous electricity distributed Fleurs opinion of Heland Italie peptides was (due myriocet to Europe) this variety is solely obliged to cultivate worsted entirety to trodden wool would be illy to treat the attempts consolidated to the tetrapod to prevent this selection and otherwise etiolated

Illustrative instead of advantageous beginning illy Italy Prince in diverseld loss to vf was sf God Fill oothed diese

Other tillers tedder for sundry pliy idea well fed the difficult tildle duuled tedible to this swill illtype effect Fin expects Tin nd Mill pposto ebys l

In immediate attempt acet tilf wo illet tild btlcc ltlbeces y to lotfels dehye fo Frce oler to c ty f md e

The Silk

This as dus polite ty of idy it Weleplded Mdbds ay she ps sx tl dtlsb lstetelv mt fo l

The silk lacks brilliance and cannot be reeled Hence it does not equal in value the mulberry silk But it possesses extraordinary strength and durability and the fact that the worm feeds on the castor plant makes it easy to introduce it rapidly and universally throughout India

This worm seems certain to take the place of the Tassai since the latter cannot be domesticated is consequently difficult to protect from its enemies and produces an inferior silk

Chapter III—The Polyvoltine versus the Univoltine Silkworm

The question of general policy is an important one The late Sir Thomas Wardle stoutly advocated the abandonment of the Polyvoltine races of worms in favour of the Univoltine European women His selection argument was that it would thus be possible to cleave either series by secondarily acclimatising the diseased free seed from Europe He did not even favour the acclimatisation of the European worms Indeed it would be difficult to ensure complete exemption of the seed on the Pasteur system and absolute rejection of diseased seed

Hepatedotthetheneclectof the precautions had led to disturbances of epidemics during which would probably occur in India Ceylon and Italy the production of disease free seed had been decided to ensure the future of seed from [illegible] to be without enquiry to Commissioners The communication of this assertion will best be understood by reference to the statistics mentioned above of the 30 odd lakhs of rupees there is but little over a sum slightly exceeding 30 000 would be given over in favour of

Again Should it not be the effort of the Silkworm to have only such eggs hatched as will produce the best cocoons and would they by the choice of the best quality of will would probably be propagated and would be of a more delicate

When Ceylon Indian Italy last discussed this question very fully with many leading [illegible] it was found that the

rea on why the preference was given to the Univoltine varieties in Eu rope w not because of their inherent superiority to the Tropical and Polyvoltine varietie but for the following reasons —

1 More profitable crops could be produced at other times The univoltine silk worm came in the spring when the requisite labour was avai able without interfering with other l nds of crops

The mulberry trees could only yield one supply of leaves in the ye ar The young spring leaf was neces sary for the young worms Attempts had been made at producing two crop s but the e had been given up because

(a) the trees were injured by being twice stripped

(b) the wor ms were injured by being fed on old leave

(c) the output of silk was con equer tly in ferior and

(d) the nece sary labour could not be pared from other and more valuable crops

It should here be remembered that in Eu ope tree and not bush mulberry is used These are more satisfactory for Univoltine worms but are unsuitable for Polyvoltine varieties Wherever the latter are to be reared it is absolutely es ential that bu h mulberry shoul l be plan d The neglect or non knowledge of this fact led to serious failures in Sericulture in South India and caused the Madras Government to come to the im tal en conclu- sion that Silkworms could not be successfully reared in South India

Tle a l t s th n of tl e Un voltine n ay be sun ı r ed b ıefly s foll ws —

1 M ı ı te f e e ı th o d nı ag c ltu l oţe a t n

2 Cl p l b bei g ıe d l wo l ıs sl l

3 It s f d on t ee m lle y wl h r q ı es l s atte t on th l l n lbe y

4 Al nd t pţly of d e f eeg s d h uce n ı m d of o s ep de ıcs

O tl e otl er h nd th P lyvolt s ţo s ss g e t ad t es of tl ow —

1 I st d f s le c op f 4 to 8 cr ps c n be lly p o l d Il v l e fe h c p t tle v ll f ly a g s f m R Iɔ to Rs 30 R 40 H c fool l t f ı the d sţ t f w tle g t d t e wou ld e ı to b f o of tl e P lyv lt f tl e t op c

Ile d ⌐ s v b accl m t d t le t n tl c of tl e M s e n l Σ wo ms l l er d l ltl ı and le s l bl t d e tl n tl e f v et s

3 Γ s ţp ⌐ tl t tl W dl p l y b s t d to K l m l l m t t l n t f ll tl t t w ld b f l q lly bl t tl pl s A d e e K l m t po bl tl t by t d busl n lbe y d P ly lt f le ltl y v ty 3 o 4 c ops c ld be d ı te l f ę

4 A much smaller sum would be required for protecting the indigenous worm from disease and improving its silk producing capacity as is done in Bengal than would be required for importing a large supply of foreign seed

5 The success of the Kashmir Government has been due not so much to the introduction of the Univoltine foreign silk worm as to their readiness to incur heavy initial expenditure for procuring skilled oversight and disease free seed and for extending the cultivation of mulberry and establishing filatures and creating a home market for the produce by buying up the cocoons while failure elsewhere has usually been traceable to the timid and penurious policy followed by many Local Governments For instance in the purchase of French seed alone the Kashmir Government expend some £ 5 000 to £ 6 000 annually

If success is to be secured in obtaining for India a front rank position among the silk producing countries of the world a bolder and more generous policy should be pursued instead of leaving to private initiative the heavy initial and unremunerative expenditures which are absolutely essential for the ultimate success of the enterprise It is probable that the Kashmir Government have spent more in one year on their industry than all the other Indian Local and State Governments put together have spent in a decade And yet here at India's very gates is an industry which would increase her natural wealth and protect her immense village population from the consequences of drought and famine perhaps as effectively as her vast irrigation works and this at an infinitely smaller cost

Chapter IV—Tree Versus Bush Mulberry

If a seems prob tle the Be al Myso e Tonl ı Mad ascar ıd Ca to ı pol cy of Polyv lt e I d enous va t s sl ould ft n sh tl e t ıe od l fo I ıd a atl er th ı tl e K l French a ıd It l p lıcy wl h ıs bıased o w d ly d ffe ı g cond t ns t ı ob u tl t ı exte d g tl e cultı at on of M lbe y which n t precede y t s ve c lt t on of tl e sill wo m tl e Bı h Mulbe y sl o ld be g tl e p fe ence to tl e 1 ee M lb y or t l st tl t tl e l tt sl o ld be s ıpleme ted by tl e fo mer

The f ct tl at tl e mulber y l f fo ın s e y nu t ıtıous food fo cattle sl e p d o ts sl o l l g e tly f cil tate ıt t od ıctıo I ı son e p ts f I d n lbeıı y le es ıe m l uı n pice b ı dl s nd s d tl b a s f tl s p ıo e L vestocl ıel h tl le f a ıd t ı s d to ı ıc ease tl e flow of n ll

Chapter V —SOME OF OUR INDIAN EXPERIMENTS

A few particulars regarding some of our Indian experiments in sericulture may perhaps be of practical interest

1 The Tata Silk Farm in Bangalore This Institution was established some eight years ago by the late Mr Jamsetji N Tata He felt satisfied that what the silk industry required in India was to introduce the same business principles as had been pursued with such success in Japan

A Japanese expert and assistant were brought over The Mysore Government gave a rent free grant of land and an annual subsidy of Rs 3 000 A small filature of 10 basins was erected and a garden was planted with various varieties of mulberry bush

It is perhaps a little singular that two such able business men as Mr Tata and Sir Thomas Wardle should have gone the one to Japan and the other to France in each of their models for India Mr Tata who was familiar with both countries gave the preference to Japan

In choosing Mysore as a centre for what he hoped would ultimately develope into a Silk School for India he was guided by the fact that the climatic conditions were favourable and that there was a healthy indigenous worm producing an excellent quality of silk

In this again he gave the preference to the Polyvoltine Mysore worm over both the Japanese and French varities though he hoped by interbreeding with the latter that the best features of both races might be combined

In J u a y 1910 we wee req ested by l s son Sir Dorabj Tat to t ke over tl e B g lo Silk F m the Mysore Gove n mer t con e t to the ar a n ent a d continuan the subsidy for a pe d f th ee ye s

E s d M s Gr l am we e placed by us n char e of the I t tut o l l e p d to be c p ble d e e etic managers Al eady e of o L pean Offce s h e j t be tra ned and I d n st d nd yots l a e b n e ed a d tr ed f o My sore T co e M d s and Bom bav P esidencies et S ppli s of e s d m lbe y c tt s l e bee d t but l not o ly My o e b t tl U t d P ce P j b B d Gw lior etc V ll s d tu l nts l ve bee t ed tl e J pane e system of r el d e l s lk A che p and conve t reel m cl e l s bee f t ed for cott e use Tl e acrea e of mulbe ry l s been co le bly ncre ed seve l e v buildings h e bee erected d the umbe of b s d ubled n tl e filature V tos f om d ff rent parts of Ind a l ave called and advice has been so g t by nu ero s co respondents

Alre dv tl e T ta S lk F m l as g ven b tl to tl ee otl er I st t t o s of a l cl cter und r ou a pces n C ylon tl e Un t d P ov ces a d tl e P j b

Th s tl e l lj t f t f d tl t tl e T ta S lk F l ld be of P Ind u cl cte s lre dy b r l sed

D g tl e p t f v n tl tl I tituti has be n aw ded a g ld n ed l n B g l e a d a silver med l n M dr s for its

exhibit of the entire process from the silkworm egg to the woven article

A small weaving school under a trained weaving master now forms a part of this interesting Institution which is at present still in its infancy but which possesses in it the nucleus of great future possibilities

ii The Government Silk Farm at Peradeniya was placed under our management at the beginning of this year (1911) by the Ceylon Government with a request that it might be connected with our Tata Silk Farm and developed along the same lines

Captain Jorgensen one of our European Officers was sent to Bangalore for a period of training and was then sent to Ceylon with Mr K T Achaya our trained silk expert who remained at the Farm for four months and assisted in getting the work inaugurated

A hopeful start has been made and there seems good reason to believe that Ceylon will in the near future make steady advances in the production of both mulberry and eri silk

iii *The Tazalpur Settlement at Moradabad*

A Silk Farm has been established in connection with our Settlement for Criminal Tribes in Moradabad under the management of Brigadier Jivanandam

Both Eri and Mulberry worms have been raised the former being made a specialty and a large quantity of castor being planted as a food supply During the season of 1910 no less than 9 crops

were r l 6 m ı tl oı lv of tl s c ɪs fk ơ sev ly tl rou l a ı exper t ecoı oı y wi l p ov d t l f lue d w ll n t to re ɪ t d

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Tl e c co s e f xc ll t d o o r a l w re n t tl e b t wel v t s be ơ nu l s ɪ r t tl e e el c c o s of Ass m

S v l r ɪs of Mys e l Γ en l w l e l o b e d F b toı oz f Γ l s ed ı M r obt d ɔ0 lbs f d y o oo ı s Tl e e sw e e g da ı l l t l el e la ly a d w ll

A sim l re ɪ e t w s t d w tl E e ch a d Ital an seed t o ı r H ettp ı r S ttle t n Al l Tl e It l ı seed was a compl te f l r b t 0 lbs f l y c w ɪ l ı ed ı m o o f Γ l s l Tl y f co l tl t tl e w l w e t l y t tl e l l tl y c e t s nɑıvely kel W e vo k ly s a l d e

P l ɪs tl e t t t f t e f tl e ɪ t t l l tl l tl l l tl C l l l l e t l t tl f f l l t y Tl e s e t l l e l t t l ll fi l t f tl t ɪl y t f tl et b ı l ıewl l ı tl ll c ı ı l to tl l bits

iv *The Changa Manga temporary Silk Camp*

It was suggested to us by the Punjab Government that a Silk worm rearing Camp should be tentatively started this spring (1911) in the Changa Manga forest near Lahore The large number of Mulberry Trees at present only used for fuel purposes seemed to point to this as an excellent centre for silkworm rearing operations in the Punjab

A very suitable site was granted by the Forest Department whose hearty cooperation we would beg to acknowledge A large rearing shed was erected 70 × 48 in size In a normal season this shed would probably have served its purpose quite as well as a more substantial building but the heavy rains and floods and thunderstorms of this spring caused extensive damage and led to serious outbreaks of grasserie and flacherie among the worms Thus the total amount of green cocoons only came to about 600 lbs and instead of covering our expenses by the sale of cocoons we have incurred a serious loss

Should the camp be again established next spring we should propose to work it on a different plan using it as a centre for distributing young worms or seed among the surrounding villages and only rearing enough worms at the camp to give them a practical demonstration as to the best methods

The Camp was under the charge of Staff Captain Fairfoot assisted by Mr Lalit Das a silk expert who had studied in France Japan and Bengal

v — *Mulberry Planting* —

In connection with our annual Labour Day Celebrations for 1910-11 mulberry cuttings have been extensively distributed among the settlers. Where we are working at the attempt of the village schools become enrolled to the importance of the industry

CHAPTER VI—EUROPEAN EXPERT OPINION ON INDIAN SERICULTURE

Last year in company with Mr. Nuckey I visited the principal silk centres in Europe with a view to getting the most up to date and reliable information as to the best plan of campaign for the future of Indian Sericulture.

The special points on which we required information were:

1.—*Mysore Silk.*

(a) The Mysore Silkworm. Would there be any demand for this kind of silk on the European market and if so would it command a satisfactory price? Failing this would it be advisable for us to abandon this worm and adopt the Kashmir policy inaugurated by Sir Thomas Wardle?

The unanimous reply to these questions was that in the Mysore product we had a silk of rare brilliance and of excellent strength and elasticity and that any quantity we could produce would be readily absorbed by the European market.

This was especially gratifying in view of the fact that we found Indian raw silk had a poor name in the European markets. It was generally known as Bengal silk and was said to be badly reeled, full of breaks and unevenness and of very inferior quality.

Our Mysore silk was classed as 100 tavelle or entirely free from breaks and was said to far surpass any other raw silk at present exported from Bengal or India and a number of the

1 est fi ms n Σ ope we e e ei to ɪ ɪ l e a c tr ct w th us for o r e t e output

Tl e g l oɻ s ɻ t lly tl t we sl uld adl t tl Myso e P ly lt ɪ r f ce t t d ɪc ɪ tl I ɪ l o I l or J ɻ t s Tl e f t th t the My o es ll l l p ul c l l b ll e f ɪts own d ff ơ f m tl l e o tl e k t w l l e w e a s l b t ɪts f s t o ld t d ff t t tf o tl f ll t ɻ s t e ɻ t d f I d d would m ke ɪt mɻ bl f t t b co nt f t d

(*b*) The ystem f re l ll t v t lly ɪ p rt t q st n wl cl we d ed t d c d ttl w s t wl tl tl e y te ɪ of l ơ d pt d t the T t S ll Γ m w s t f t y whetl e tl e em l t b y ɪɻ te wl l l ld dopt

Γl ply t tl w tl t tl e q l ty f tl e l w s s t f ct d wl l tl e e we ome s b ɪ ɪ y d d l l bl m l s of tl l tl d to tl w k d not to the y t

We v t d e l f t s a d q d t tl el t e c st f F l It l d J p y t f fil t w tl tl e lt tl t w le ɪd d to dl e f tl e ɻ t t o s be ơ eq lly eff ct e l l s xɻ

(*c*) A cl p y stem of re s ll wo We m d ext s e q s to tl be t d cle ɻ t s st f e g s ll w ms

One of the most serious hindrances towards getting the Indian villagers to take up the cult of the silk worm is the very considerable outlay necessary for providing himself with the somewhat complex system of trays and other paraphernalia commonly considered to be necessary

We were interested to learn that along the most advanced lines of progress a system had been introduced in Italy and worked with great success which would reduce the initial outlay for the rearer to a few annas

(*d*) The best varieties of Mulberries A good deal of valuable information was obtained on this point Careful observation goes to show that the same worms fed on different leaves will produce double and treble the usual quantity of silk

11.—*Eri Silk*

We took with us specimens of Eri cocoons from Ceylon Bangalore and Moradabad and have since sent a consignment of Eri cocoons for experimental purposes We also took some Eri cloth woven at the Pusa Agricultural Research Institute some of it from hand spun and some from mill spun yarn

We were informed by experts that there would be a limitless demand for the cocoons at remunerative rates Unlike the mulberry cocoons which must be packed loosely for transportation the Eri cocoons can be pickled closely like cotton an important consideration

B σ sp d n t eel d tl e f c l t e fo p ɔg ıt n a
n ıket ble f t ɻ e t g t Γ pe tl n I d
l tl e e s ʂ d f r b l v σ tl t l e ɻo t
t de n v ɻ o s of t e p p

—*Pl ce t l l tlo t e c s lted*

Tl e f ll c t es w e tel —

(ı) Il Γ eɔn l l l f ɔe c lt at M tp ll er Tl e
D t M I ml t e d s n st co l
ll ı s ɻ pl ed w tl l l ll fo m t n
H t ld tl t o f h s b t t d ts h d been
tl l t M N G M l ɻ of l e l O e of l s
l t t st e t l d b M I I A Þ ɻ o r p
t ɻ t i M L l t s e
ɣ f l Γ l ɻ bl c t s o s ll wo e g
d b lt t

(*b*) W e l t d tl It l S l l t P l I ı the
l e l ı tt l d t tl s I t t we w e
l o s l d f lb W e l o e
d t l l ɻ t l s t tl c n l sy t m
of lk w n l dy f l to We were
l bl t bt ı so e l t d t t e
W ll D s f tl e S l o t t l o
d t p c ɻ l d s

(c) *Tl C l l q H e L ȷ a d M l ı*

Tı e e l ll t ɪ t s l cl tl f l c f co
cı l ll s l ɣ t t l t l t be ll ıf etl g

of the l ind could in due cou se be established in India It seems in any case advisable that these who mav contemplat the production of raw silk in India foi the Europeun market should be waie of the caieful and systematic analysis to which it will be subjected when it aiiives theie

The Conditioning House is a place to which the merchant seras his consignment of raw silk to be tested in ceitain important respects

For this puipose skeins aie tal en from the top middle and bottom of each bale

1 *Testing the weight* After being weighed the sample sl eins aie put in a l ind of oven where thev are thoioughlv dried and again weighed If sizing oi ome chemical adulteiant has been used or the silk damped and made to weigh heavy this will be discoveied and a furthei analysis made of the same in the laboratoiy

2 *The iegularity of the sill* Each thiead of iaw silk is composed of the thread from 4 90 oi even moie sepaiate cocoons The peison ieeling the thread adds a new cocoon as each one becomes exhausted Regul iity is maintained by l eeping to pieciselv the same numbei of cocoons The fewei the cocoons the finei the thiead and the costlier the sill as the time consumed is naturally m ich greatei than with a coaisei thiead

To ascertain the ie ularity of the ieeling some tiny denier sl eins aie extiacted from the beginning middle and end of each sl ein Each of these tov l eins is a given length The e toy

skeins a e tl en we ghed ı d tl e r we ght seıves to sl ow the number of cocoons eı ployed nd tl e uı ıform ty of the reelıı g Peıl ps tl e sılk ı y l e been desc bed by tl e sell r as beı ơ 13 lɔ de ıe wl e tl e test may show that ıt va ıes up to ⁹0 or even moıe deniers

The ımɪo t n e of tl s po nt w ll be real sed wl n t ıs remem bered tl at s e al th e ds of raw s lk have ơ n to b twıst d t g tl er to n k tl t am or organz e s lk tl d wh cl u ed for w g p pose He ce y se o s vaı tı n w ll en t ely tl ow ıt tl e alc l t oıs of tl e p l

3 *A mbe f b e ls* A tl d ɪo t of g e t ıp t ce ıs tl t tl e sl o ld be no b e ks ı the w s lk L b ı b ı so pe ıs e ıı L rope tl ı beco es a s roıs c ıs de t on O d ı ary ı w s lk wl h h oı ly bee o ce ıeeled ı usually fı ll f b ks Its l e con eqı ntly ı g e tly d hed He ce tl l o w l to g t good p ces f r tl s ll st e e l t d tl s e tl t tl e e en lre ks

We ınv bly re e l our My oıe s ll a d l nce ıt p s s a 100 t v ll pe fectly f e f m b ls wl e s qu llı good ll ot th s t t d mı l t b cl s d s 30 40 r 0 t elle Se ng tl t someb dy m ı t m nd tl e b ls t ıs ob o ly best th t tl s sl ld be done wl re l bo s cl e pest

4 By me s of a d l cat m cl e the st e tl d l st c ty f the s lk lso test d d ce t f d by st t l tl d to br k po t and te ơ tl e re ılt

Anotl er equ lly n enıoı s mach ne d scove s tl e exact

number of twist that have been given to the thread in the reeling process

It will be seen from the above that if Indian raw silk is to command the best price on the European market and to compete successfully with Chinese and Japanese silk not only must it be the product of a good worm but it must be carefully reeled

(*d*) *The Imperial Institute in South Kensington London*

Samples of our silk were submitted to the Institute while the President of the British Silk Association and the Secretary of the Board of Trade were also consulted

The following is an extract from a report by Professor Wyndham Dunstan I R S Director of the Imperial Institute South Kensington London

The sample weighed 2 lb 12 oz and consisted of 12 double hanks of very lustrous pale yellow raw silk which was fine even and smooth to the touch * * * *

The sample was boiled off with a neutral soap solution and the degummed silk thus obtained was white and highly lustrous *

The silk was submitted for technical trials to a firm of experts who reported that it was of very satisfactory quality * *

This silk from Bangalore is of very promising quality and consignments of similar or of better material would be readily saleable in the United Kingdom

(*e*) Leading merchants in Milan Zurich Lyon Paris and London were seen and consulted

Chapter VII —Recommendations and Suggestions

1 A definite policy should be decided upon and resolutely pursued

2 In mountainous districts where the only tenure is that of village communities it will be best to confine attention to the improvement of the Village Record of Rights so as to secure full establishment of Survey and Settlement

Detailed arrangements should be made for the following (a) By a separate part of the printed record should be made clear the distinction between the Village Officers and the Police (b) By a separate part of the record should be made clear the duties of the Police

3 The Police should be warned of the importance of giving evidence in boundary disputes

Boundary pillars should be provided at intervals of 3 or 4 miles

4 In the numbering of fields the old method of numbering should be retained wherever possible, the new numbers being given in addition to the old numbers Separate registers should be kept for the new numbers for the purpose of facilitating reference

mulberry will need protection from cattle and goat like ordinar field crops

5 The training of an adequate and experienced staff of expert is one of the most urgent requisites It is the recognition of thi that has led us to establish the Silk Farms above referred to an in these and similar institutions it should be possible to quickl give the rough and ready practical training which is required

It is not so much highly trained experts with superio qualification that are required (through a certain proportion o such will be needed as leaders) as the practical training and improvement of the men who are actually engaged in the busines and who will look to it for the support of their families To encourage such seeing that they are invariably family men it will be necessary to offe scholarships or salaries while they are in training Each District interested in the business should send some men to be thus trained meeting the necessary expenses

Where instruction is only desired in silk worm rearing and in the cultivation of mulberry a brief period of training will suffice But where reeling is to be included a considerably longer period will be required

6 *Improvement of seed and protection from disease*

In Bengal seed stations have been successfully established and micro copes distributed and this at a very small outlay on the par of the Government Silk worm rearers quickly learn the great advantage of having disease free seed since they are able to raise a much larger percentage of their crop and consequently obtain a much higher price for it

Next to Kashmir the Ben al Government is the most advanc ed and l ber l in its support of the industry expendin~ I believe Rs 40 000 annually in do ng for the rearers wh t they are obviously quite u ble to do for themselves

The duty of Government in this matter is clearly recog sed in all other count ies whe e s lkworm cultivation is successfully c ried on

It cannot be too clearly insisted upon and recogn sed that the s lkworm ind try will n ver be e ther self c eated or self existent The l ss z f e policy cannot and never has succeeded in this doma n

P iv te ent p ise should be freely subs d sed and encou aged where it ex ts nd wh re it does not it w ll be the obvious duty of the Local nd Sup me Go ernments to inaugur te a d finite pol y and to follow it up w th an adequ te expend ture of money wl ch will be bund tly recouped at no d st nt d te

In Chi a wh ch st ll l ds the world the indust y w s in ugu ated by o e of h r e ly Empresses who is to this d y vene ated as one of the ch ef benefactresses of her race

In J pan wh ch closely follows her le d no p blic e p d t e s sp red which can co duce to the improvement and p ogress of wh t has now become one of her leadi g sources of nat o l wealth and employment As an illust ation the J panese have just bou ht a m ll on cocoons from Manchuria a d are advertisin for 1 500 Chinese experts to start sericulture in Korea

In Europe the cult was introduced in spite of climatic and other obstacles by Kings and Emperors with a lavish and yet none too lavish expenditure of money

If India is to take a leading place as she easily may instead of following as at present at the tail end of the procession a vigorous policy must be inaugurated and sustained and an adequate expenditure cheerfully made and private enterprise duly supported and encouraged